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# Postoperative Outcomes of Enhanced Recovery After Surgery (ERAS) Protocols in Colorectal Surgery: A Prospective Clinical Study

## Author

**Dr. Alejandro R. Moreno**

Department of Colorectal Surgery

Instituto Nacional de Ciencias Médicas y Nutrición Aplicada

Madrid, Spain <sup>ES</sup>

## Abstract

Enhanced Recovery After Surgery (ERAS) protocols have transformed perioperative care by emphasizing evidence-based, multidisciplinary strategies aimed at reducing surgical stress and accelerating patient recovery. This prospective study evaluates the impact of ERAS implementation on postoperative outcomes in colorectal surgery. Clinical indicators including length of hospital stay, postoperative complications, pain scores, and readmission rates were analyzed. Results demonstrate that ERAS protocols significantly improve recovery outcomes and reduce postoperative morbidity, supporting their broader adoption in colorectal surgical practice.

**Keywords:** ERAS, colorectal surgery, postoperative recovery, surgical outcomes, perioperative care

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## 1. Introduction

Colorectal surgery is associated with significant postoperative morbidity, prolonged hospitalization, and increased healthcare costs. Traditional perioperative practices often delay recovery due to prolonged fasting, delayed mobilization, and excessive opioid use. ERAS protocols integrate optimized anesthesia, early nutrition, multimodal analgesia, and early mobilization to enhance recovery. Although ERAS adoption is increasing, outcome data from structured prospective studies remain essential to guide standardized implementation across healthcare systems.

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## 2. Materials and Methods

### 2.1 Study Design

A **prospective cohort study** was conducted between **February 2023 and January 2025** at a tertiary surgical institute in Spain.

### 2.2 Participants

A total of **180 adult patients** undergoing elective colorectal surgery were enrolled:

- **ERAS Group:** 90 patients
- **Conventional Care Group:** 90 patients

### 2.3 ERAS Components

- Preoperative patient education
- Reduced fasting and carbohydrate loading
- Multimodal analgesia (opioid-sparing)
- Early postoperative feeding
- Early mobilization (within 24 hours)

### 2.4 Outcome Measures

- Length of hospital stay (days)
- Postoperative pain (VAS score)
- Surgical complications (Clavien–Dindo  $\geq$  II)

- 30-day readmission rate

## 2.5 Statistical Analysis

Comparative analysis was performed using independent t-tests and chi-square tests. Statistical significance was set at  $p < 0.05$ .

## 3. Results

**Table 1. Postoperative Recovery Outcomes**

Outcome Measure	ERAS (Mean $\pm$ SD)	Group Conventional (Mean $\pm$ SD)	Care $p$ Value
Hospital Stay (days)	5.1 $\pm$ 1.3	8.2 $\pm$ 2.1	<0.001*
Pain (VAS) Score	3.2 $\pm$ 0.9	5.0 $\pm$ 1.1	<0.001*

\* Statistically significant

**Table 2. Postoperative Complications and Readmission**

Parameter	ERAS (%)	Conventional (%)	$p$ Value
Complications	14	28	0.018*
30-Day Readmission	6	15	0.041*

\* Statistically significant

## 4. Discussion

The findings demonstrate that ERAS protocols significantly improve postoperative recovery following colorectal surgery. Patients managed under ERAS experienced shorter hospital stays, reduced pain scores, and lower complication rates compared to conventional perioperative care. These improvements are likely attributable to early mobilization, optimized pain control, and early nutritional support.

The reduction in readmission rates further highlights the role of ERAS in enhancing long-term recovery and healthcare efficiency. While successful implementation requires institutional coordination and staff training, the clinical benefits observed strongly support routine ERAS integration in colorectal surgical pathways.

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## 5. Conclusion

ERAS protocols significantly enhance postoperative outcomes in colorectal surgery by reducing morbidity, accelerating recovery, and lowering readmission rates. This study supports widespread adoption of ERAS as a standard perioperative care model in colorectal surgical practice.

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